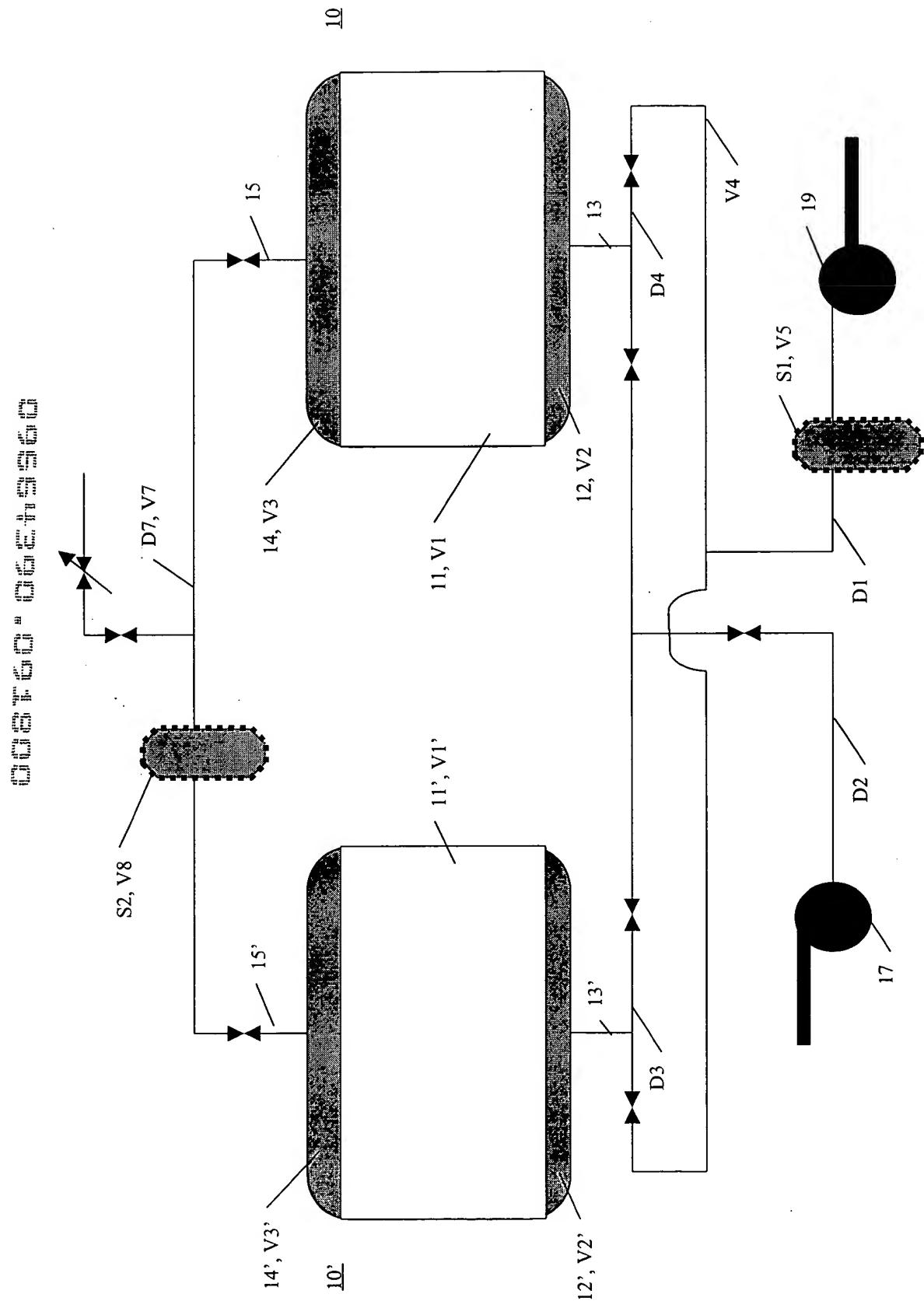


Figure 1. Prior Art: Conventional PSA



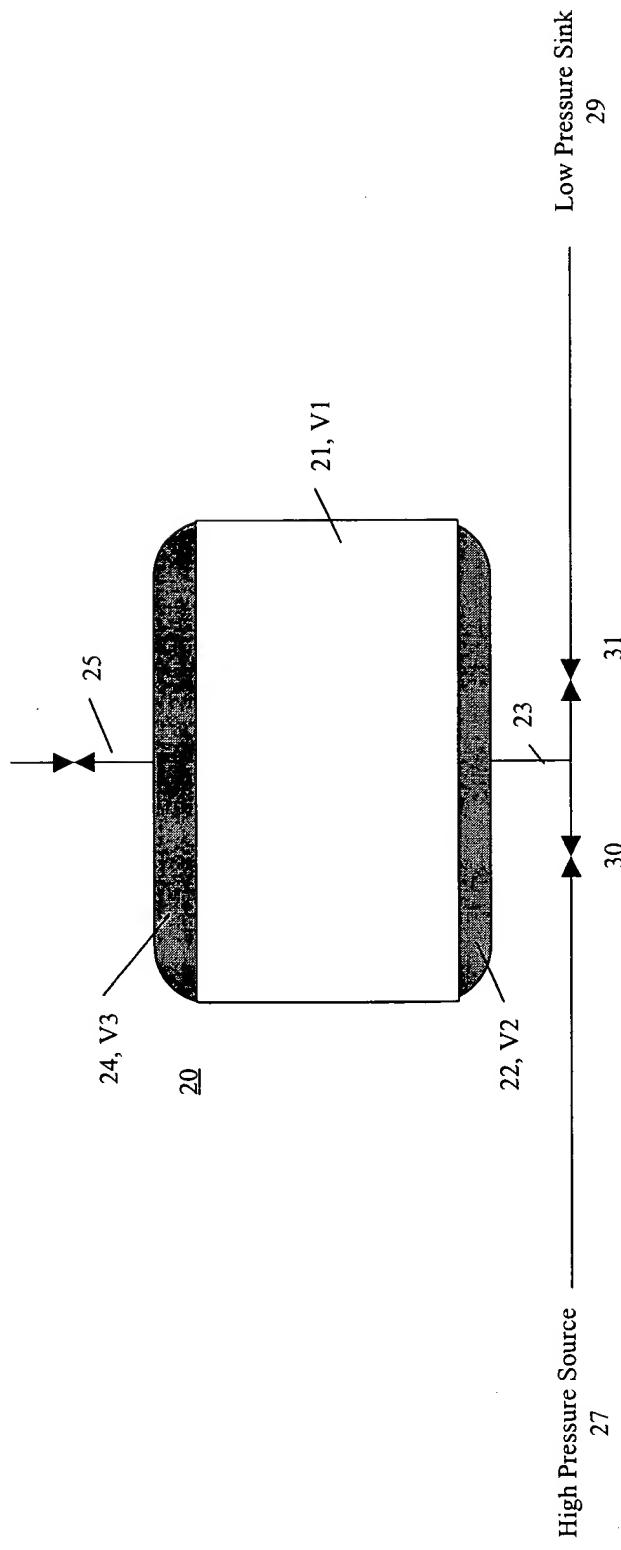


Figure 2a. Invention: Single Bed with Low Void

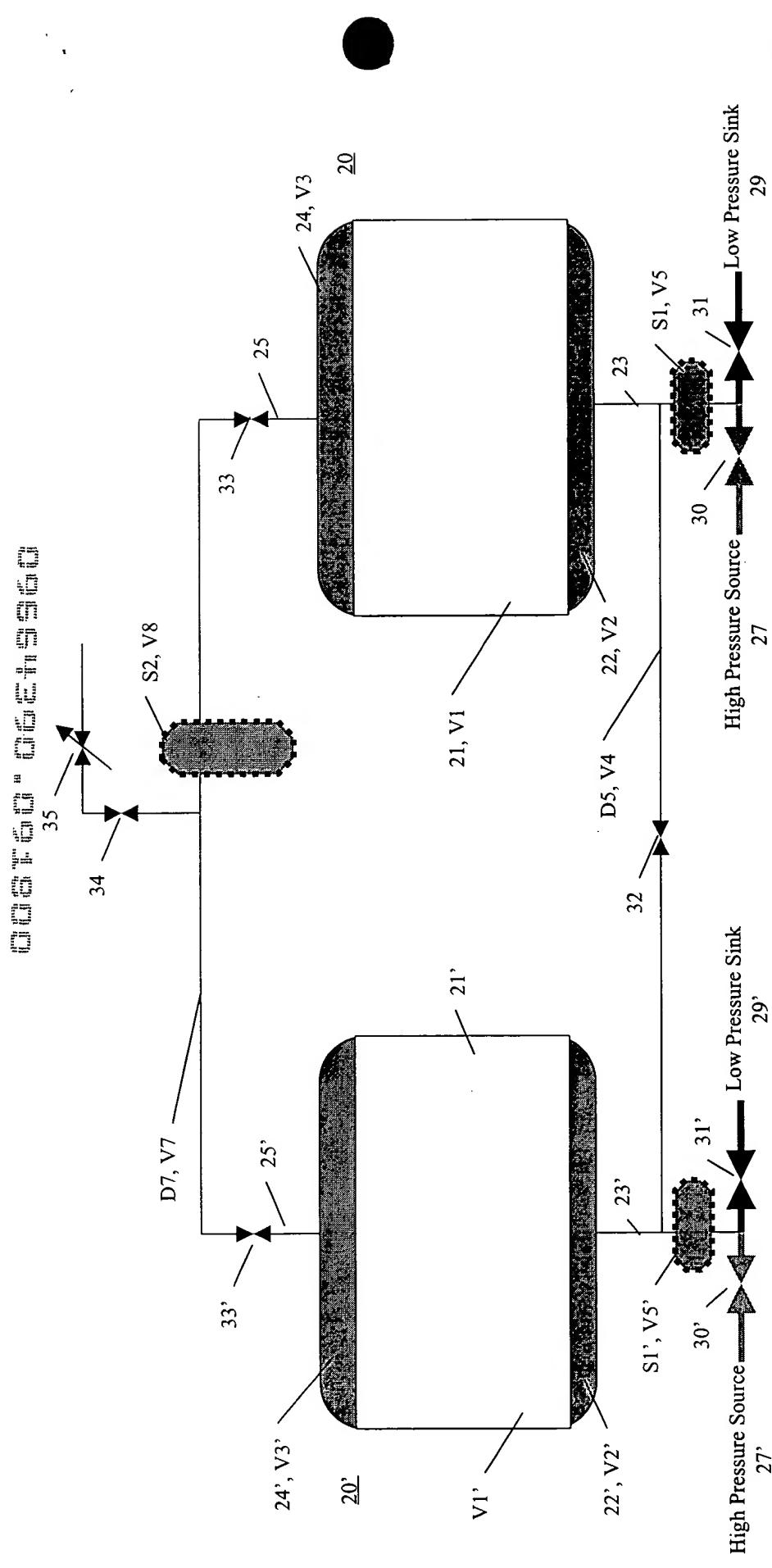


Figure 2b. Invention: Two Bed with Low Void

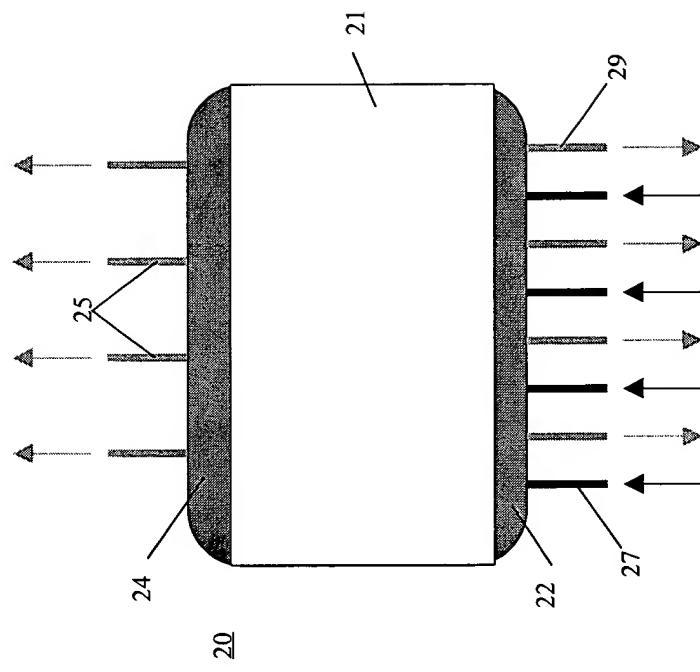


Figure 2c. Invention: Flat Header Bed with Closely Mounted High Pressure Sources and Low Pressure Sinks

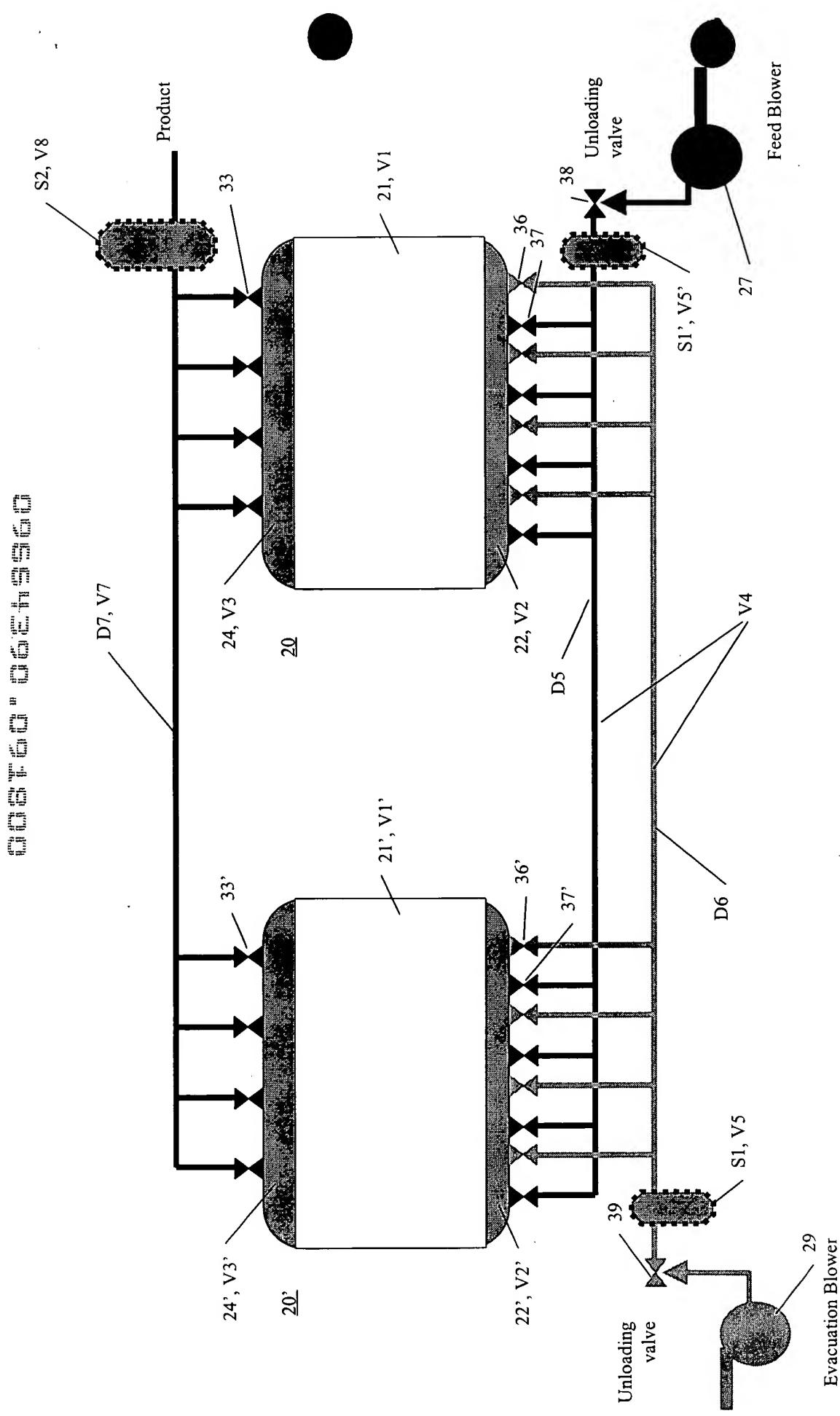
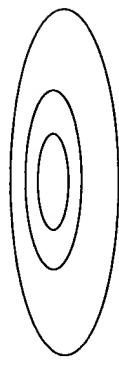
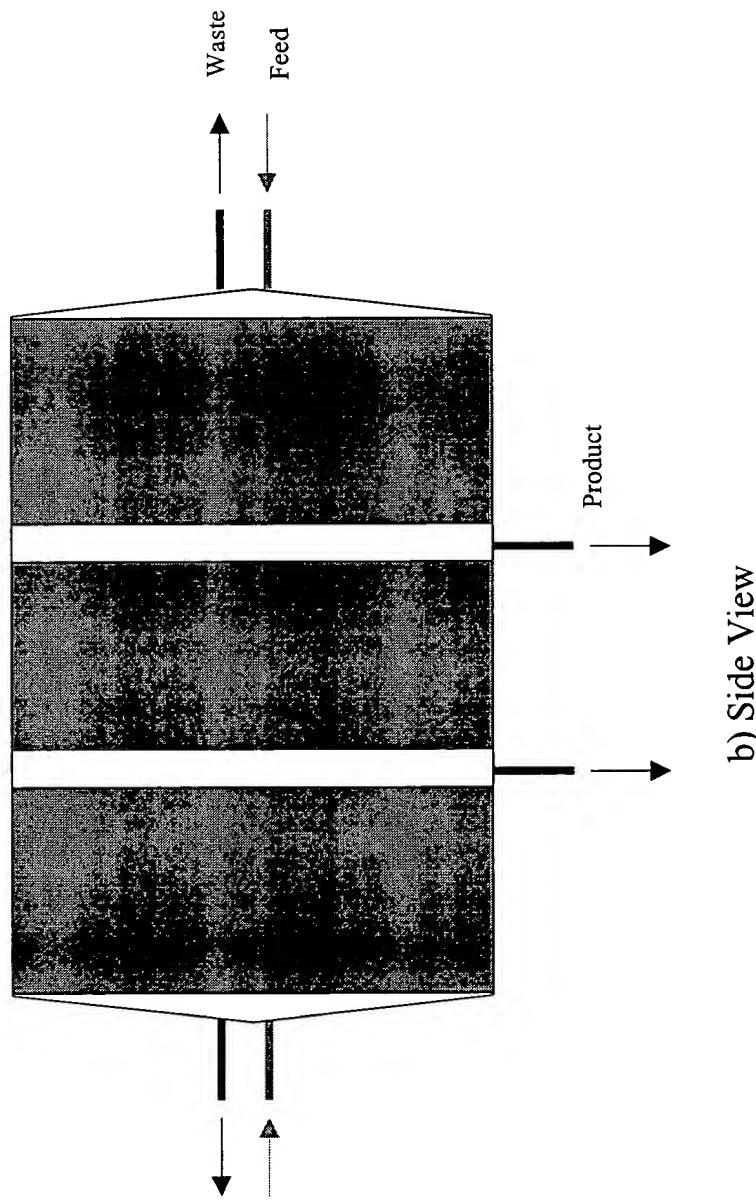


Figure 2d. Invention: Flat Header Bed with Distributed Valves

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a) Top View



b) Side View

Figure 3. Radial Bed

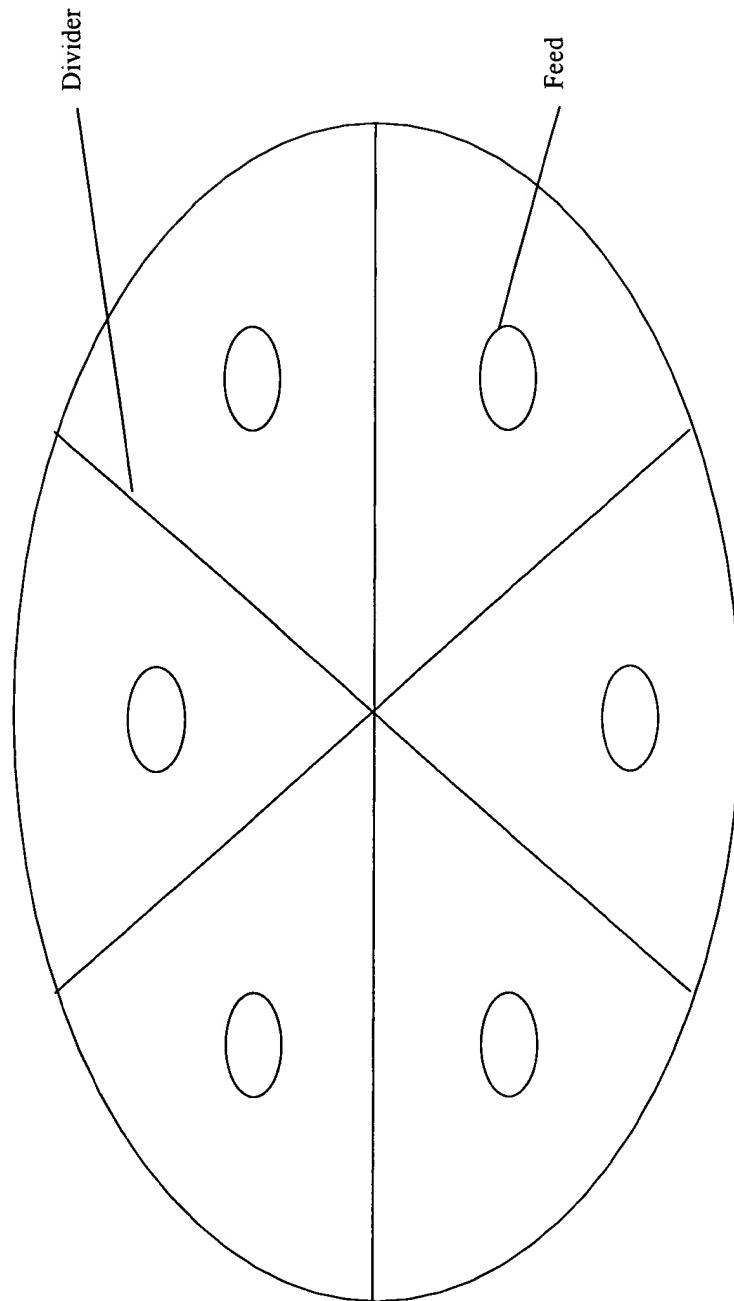
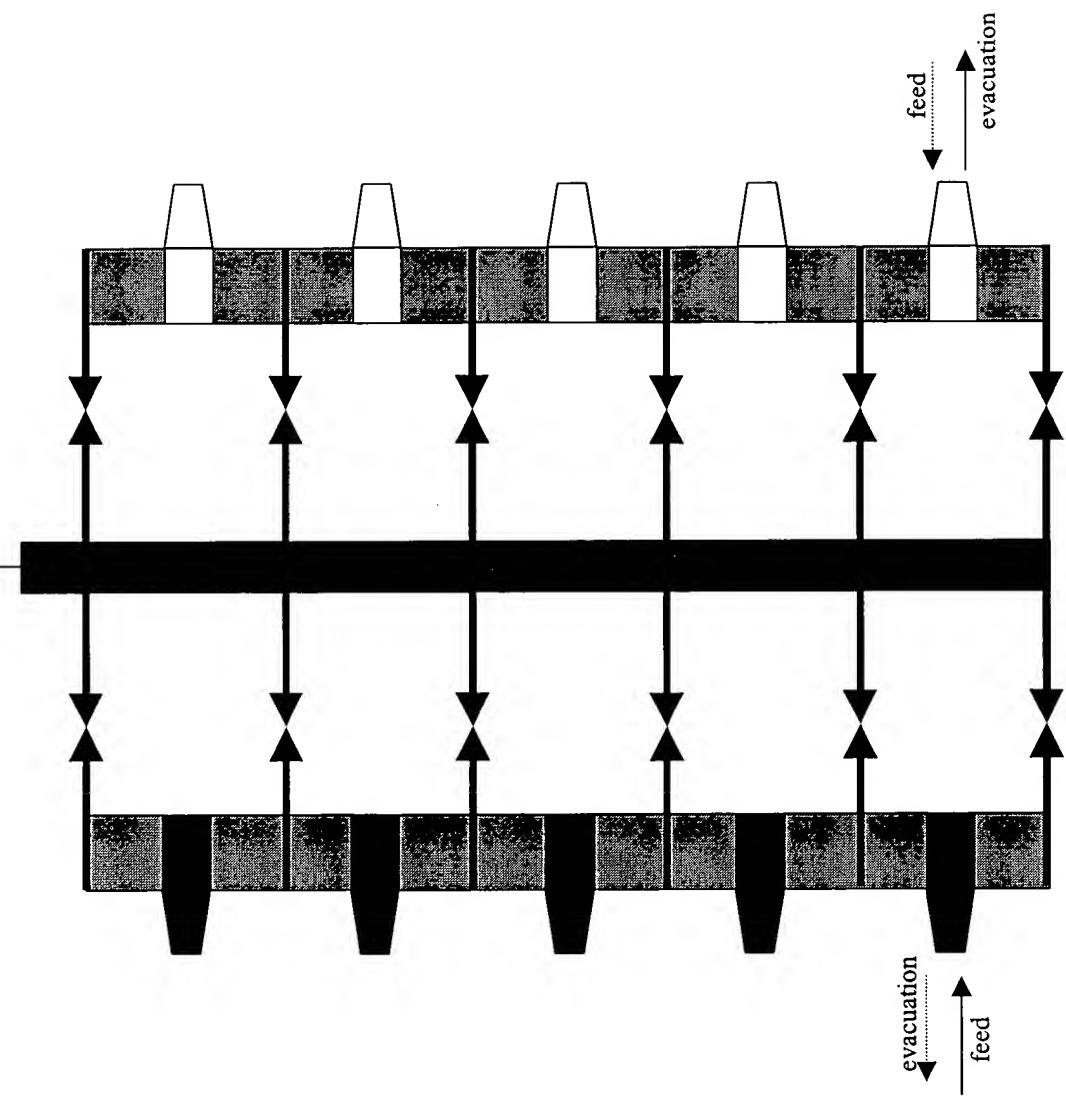


Figure 4. Segmented Bed

Top view of a segmented vertical bed, different sections separated by dividers undergo different PSA process steps such as adsorption, desorption and equalization, etc.

Figure 5. Vertical Plate Bed



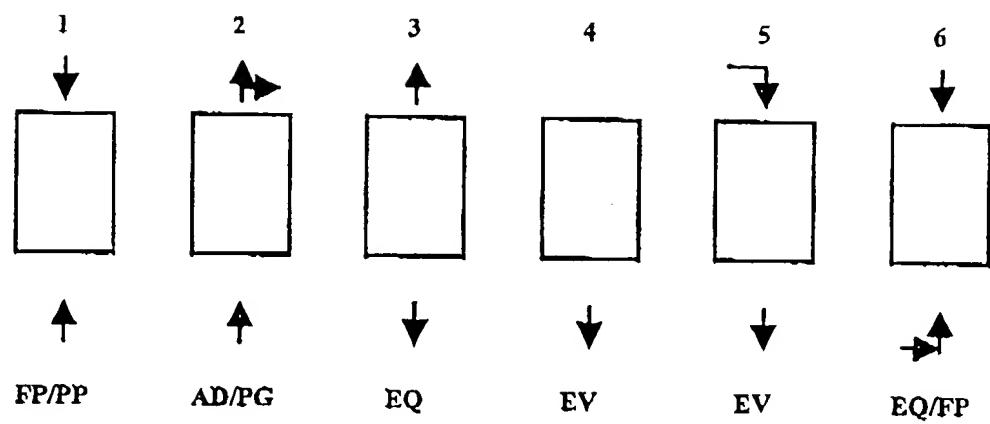


Figure 6 Representative Process Cycle

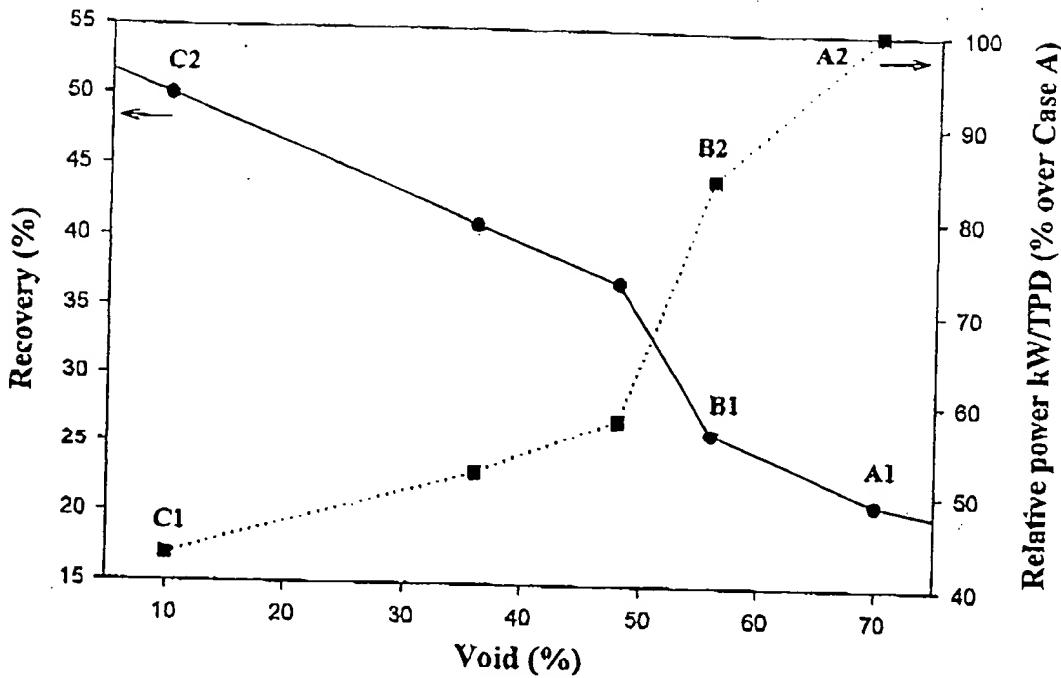


Figure 1 void influence on recovery and power

- Case A: Without the instant invention with large void volume as shown in Figure 1 but with fast cycle time (~2s), low recovery and high power.
- Case B: The instant invention, reduced distribution pipe void volume as shown in Figure 2b.
- Case C: The instant invention, flat header as shown in Figure 2d.

2-Bed system, high and low pressures are 1.5 and 0.3 bars, O₂ purity is 90%, cycle time is about 1~2s.